



10CFR 50.73

CCN: 18-121

November 29, 2018

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Peach Bottom Atomic Power Station (PBAPS) Unit 3  
Renewed Facility Operating License No. DPR-56  
NRC Docket No. 50-278

Subject: Licensee Event Report (LER) 3-18-003

Enclosed is a Licensee Event Report concerning an automatic reactor scram following the loss of two condensate pumps. In accordance with NEI 99-04, the regulatory commitment contained in this correspondence is to restore compliance with the regulations. The specific methods that have been planned to restore and maintain compliance are discussed in the LER. If you have any questions or require additional information, please do not hesitate to contact Matt Retzer at 717-456-4351.

Sincerely,

A handwritten signature in black ink, appearing to read "Pat D. Navin", written over a light gray horizontal line.

Patrick D. Navin  
Site Vice President  
Peach Bottom Atomic Power Station

PDN/dnd/IR 4178845

Enclosure

cc: US NRC, Regional Administrator, Region I  
US NRC, Senior Resident Inspector  
R. R. Janati, Commonwealth of Pennsylvania  
D. Tancabel, State of Maryland  
B. Watkins, PSE&G, Financial Controls and Co-Owner Affairs



## LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollcts.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>1. Facility Name</b> Peach Bottom Atomic Power Station Unit 3	<b>2. Docket Number</b> 05000278	<b>3. Page</b> 1 OF 3
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<b>4. Title</b> Automatic Reactor Scram Due to Loss of Two Condensate Pumps
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5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Year	Facility Name	Docket Number
09	30	2018	2018	- 003	- 0	11	29	2018	Facility Name	Docket Number 05000

<b>9. Operating Mode</b> 1	<b>11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)</b>			
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(iii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	
<b>10. Power Level</b> 100%	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)	
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)	
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)	
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)	
	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)		

<b>12. Licensee Contact for this LER</b>									
<b>Licensee Contact</b> Matthew E. Retzer, Regulatory Assurance Manager								<b>Telephone Number (Include Area Code)</b> 717-456-4351	

<b>13. Complete One Line for each Component Failure Described in this Report</b>									
Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES
B	EA	CBL5	NA	Yes					

<b>14. Supplemental Report Expected</b>					<b>15. Expected Submission Date</b>			Month	Day	Year
<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No										

**Abstract** (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On 9/30/18, an automatic reactor scram of Unit 3 occurred due to low reactor vessel water level following the loss of two condensate pumps. Plant equipment responded properly. The High Pressure Coolant Injection and Reactor Core Isolation Cooling systems automatically initiated on reactor low water level and restored level, in addition to the '3C' condensate pump and feedwater system. Reactor cooldown commenced in accordance with plant procedures.

The cause of the event was determined to be due to an electrical fault in the power cable for '3B' condensate pump and actuation of ground protective circuitry for the '3A' condensate pump. The electrical fault in power cables for the '3B' pump caused a ground current transient that raised the ground potential of the '3A' condensate pump transformer, resulting in a trip of the '3A' pump. Subsequently, power cables for the '3B' pump were replaced and ground circuitry for the '3A' pump was corrected to prevent such interaction.

There were no actual safety consequences as a result of this event. The '3C' condensate pump and reactor feedwater remained available for post-scram recovery.

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Peach Bottom Atomic Power Station Unit 3	05000278	2018	- 003	- 0

**NARRATIVE****Unit Conditions Prior to the Event**

Unit 3 was operating in Mode 1 at approximately 100% rated thermal power. There were no structures, systems or components out of service that contributed to this event.

**Description of Event**

On 9/30/18, at approximately 1128 hours, Condensate [EIS:SD] Pumps '3A' and '3B' both tripped. With the loss of two of the three condensate pumps, reactor water level lowered as expected from the normal 23 inches to the automatic reactor scram setpoint of 1 inch. Plant equipment responded as expected. The High Pressure Coolant Injection (HPCI) [EIS:BJ] and Reactor Core Isolation Cooling (RCIC) [EIS:BN] systems automatically initiated on reactor low water level. Group II and III containment isolation signals were received, resulting in valve closures for several systems, including portions of Residual Heat Removal (RHR) shutdown cooling, reactor water cleanup, drywell drains and drywell purge. HPCI and RCIC were secured and reactor level was maintained with the '3C' condensate pump and a reactor feed pump. Reactor cooldown commenced in accordance with plant procedures.

**Analysis of Event**

Initial investigation of the event revealed the '3B' condensate pump trip occurred first and the '3A' condensate pump tripped immediately (approximately 0.009 seconds) afterwards. A visual inspection of the cables at the cubical identified a degraded section of insulation on the B phase cable. The insulation showed a scorch mark where an electrical arc occurred. When the cable was cut, water was observed in the area between the aluminum conductors. The cable had been replaced in October 2017 and was pulled through underground conduit. The end of the cable was not adequately sealed to prevent water from entering the cable during the cable pull.

A ground overcurrent relay for the '3A' condensate pump was found to be tripped. Ground fault detection circuitry for the '3A' condensate pump uses a zero-sequence current transformer (CT), which requires the ground wire for the cable shield to pass through the CT. When ground wires were installed for the '3A' condensate pump power cables in October 2015, the ground wire was not properly routed through the CT. As a result, when the ground fault occurred at the '3B' pump transformer, a ground potential rise occurred which actuated the '3A' ground detection circuitry.

This event is being reported in accordance with the following:

- 10 CFR 50.73(a)(2)(iv)(A) – any event or condition that resulted in manual or automatic actuation of systems including HPCI, RCIC, the reactor protection system (reactor scram) or containment isolation.

There were no safety consequences as a result of this event. All safety systems responded as expected. The '3C' condensate pump and reactor feedwater remained available for post-scrum recovery.



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**NARRATIVE****Cause of the Event**

Both conditions that led to the reactor scram (water in a cable for the '3B' condensate pump transformer and an incorrectly routed ground wire for the '3A' condensate pump) were due to failure to comply with Electrical Specification E-1317, "Wire and Cable – Notes and Details," when work was being performed. This specification contains requirements for waterproofing the ends of cables when they are being pulled through underground conduits and requirements for routing grounding wires when using zero-sequence CTs.

**Corrective Actions**

The affected equipment has been repaired. Cables have been replaced for the '3B' condensate pump and the '3A' cable shield ground wire has been routed through the CT. Additional corrective actions are documented in the Corrective Action Program.

**Previous Similar Occurrences**

No previous similar occurrences have been identified.